

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,
please do not report the images to the
Image Problem Mailbox.**



Consommation
et Corporations Canada

Consumer and
Corporate Affairs Canada

Bureau des brevets

Patent Office

Ottawa, Canada
K1A 0C9

(21) (A1)

2,047,010

(22)

1991/07/12

(43)

1992/01/24

5,006,2/66

(51) INTL.CL.⁵ A47L-013/16

(19) (CA) **APPLICATION FOR CANADIAN PATENT** (12)

(54) Device for Cleaning Surfaces

(72) Burkhardt, Margarete - Germany (Federal Republic of) ;

(73) Same as inventor

(30) (DE) P 40 23 345.6 1990/07/23

(57) 10 Claims

Notice: The specification contained herein as filed

Canada

CCA 3254 (10-89) 41

Br 02

M. Burkhardt

Waschwisch

Description

Device for cleaning surfaces

The invention relates to a device for cleaning surfaces, in which short plastic fibres are attached at one end to a flat substrate, while their other end projects freely from one side of the substrate.

DE-U-87 12 905 discloses a glove for washing purposes which is provided on one side with such a substrate that has short fibres on it. The other side of the washing glove is made from absorbent leather or imitation leather.

A washing glove of this kind cleans quite effectively, but it is complicated and expensive to produce.

The purpose of the invention is to produce a device of the kind outlined above, with which it is possible to clean and then dry even very dirty surfaces without using chemical cleaning agents, but which has a simple design and can therefore be produced inexpensively.

In the solution to this problem proposed by the invention, a structure made from an absorbent material with wiping properties is applied to the other side of the substrate from the fibres.

The invention thus consists of a single-piece, flat cleaning cloth, one side of which is provided with the fibres for cleaning, while the other side is provided with a structure for subsequent rubbing and drying of the surface concerned. Such a cleaning cloth can be produced simply in large dimensions using appropriate machines, after which it only has to be cut to the required size.

It has proved to be very advantageous if in accordance with the invention the structure is made from chamois leather.

A particularly favourable combination of effective cleaning and drying has been achieved with this material.

It is also very advantageous if in accordance with the invention a non-woven washing fabric is provided as the structure.

These non-woven washing fabrics are very absorbent, so that they dry very effectively, and can be manufactured industrially in large dimensions, with the result that they can be produced economically.

In a further advantageous embodiment of the invention, a layer that is impermeable to water is provided between the substrate and the structure.

This is an efficient way to make sure that the cleaning side and the drying side have no effect on each other.

This layer that is impermeable to water can be produced when the substrate and the structure are laminated together, by incorporating an appropriate layer of laminating adhesive.

It is, however, also possible in accordance with the invention that a plastic film is provided as the layer that is impermeable to water and is laminated between the substrate and the structure.

It is easy to incorporate such a plastic film when the device is produced, without increasing the cost of the product substantially.

In an advantageous further development of the invention, the fibres are made from polyester and preferably have different thicknesses, ranging from 5 to 15 dtex and 15 to 30 dtex, fibres of differing thicknesses being provided in a ratio of between 20 to 80 and 80 to 20 and the fibres having different levels of hardness, while the fibres project 4 to 35 millimetres - preferably about 8 mm - from the substrate.

These polyester fibres on the one hand remove the dirt very effectively and on the other hand are very easy on the surfaces they clean, so that there is no danger of scratching and very good cleaning results are achieved even though no chemical cleaning agents are used. Since no chemical agents need to be used, no traces of these chemicals have to be removed before drying either, which is a major advantage of the combined device. The possible inclusion of fibres with different thicknesses guarantees that all different kinds of dirt are dealt with equally effectively. The excellent cleaning results are improved even more by the different thicknesses of the fibres in the specified ratios.

The difference in fibre hardness also has a beneficial effect, while the optimum fibre length has proved to be as specified above.

The result is a very favourable combination of the hardness and the softness the cleaning device needs to have.

It is very advantageous for both the handling and the useful life of the device if in accordance with the invention the substrate for the fibres is also made from fibres in the form of a woven or similar fabric.

It is also possible in accordance with the invention that a non-woven fabric or similar material is provided as the substrate for the fibres and serves at the same time as the absorbent structure.

In accordance with the invention the substrate for the fibres can, however, also be produced from plastic fibres.

The substrate is not then at all absorbent; this function is carried out solely by the structure.

It is very advantageous for the production of the device proposed by this invention if the fibres are glued or welded to the substrate.

Two embodiments of the invention are illustrated in the drawings:

Fig. 1 shows a flat cleaning cloth with a substrate material to which plastic fibres of different thicknesses are attached and to which a chamois leather has been laminated and

Fig. 2 shows a similar cleaning cloth, in which a plastic film has been incorporated during the laminating process.

1 in Fig. 1 is a device in the form of a cleaning cloth that has a substrate 2 which consists of a fabric made from plastic fibres to which plastic fibres 3 and 4 are attached. These plastic fibres 3 and 4 are made of polyester and are glued at

one end to the substrate 2 in a way not illustrated in the drawing. The fibres 3 are 18 dtex thick, while the fibres 4 are 8 dtex thick. Both types of fibre are 8 mm long and each type is present in a ratio of 50 to 50.

A structure 5 that is laminated to the substrate 2 is located on the other side of the substrate from the fibres 3/4. Chamois leather, a non-woven washing fabric or another absorbent material with wiping properties is used for this structure.

If the structure 5 is strong enough, the plastic fibres 3 and 4 can also be attached directly to the structure, so that the substrate 2 can be eliminated.

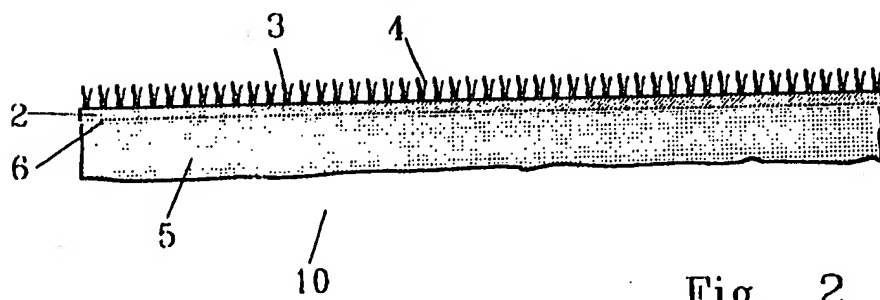
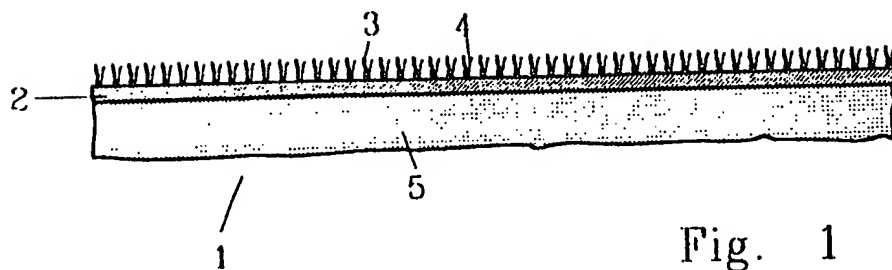
In the embodiment of the device 10 shown in Fig. 2 a plastic film 6, that is laminated both to the substrate 2 and the structure 5 and acts as a water-tight barrier, is provided between the substrate 2 for the plastic fibres 3/4 and the structure 5.

Instead of the plastic film 6, it is also possible to provide the laminating adhesive - that is needed anyway - in the thickness required to create a water barrier in this way as well.

Claims

1. Device for cleaning surfaces, in which short plastic fibres are attached at one end to a flat substrate, while their other end projects freely from one side of the substrate, wherein a structure (5) made from an absorbent material with wiping properties is applied to the other side of the substrate (2) from the fibres (3, 4).
2. Device according to claim 1, wherein the structure (5) is made from chamois leather.
3. Device according to claim 1, wherein a non-woven washing fabric is provided as the structure (5).
4. Device according to claim 1, wherein a layer (6) that is impermeable to water is provided between the substrate (2) and the structure (5).
5. Device according to claim 4, wherein a plastic film (6) is provided as the layer that is impermeable to water and is laminated between the substrate (2) and the structure (5).

6. Device according to claim 1, wherein the fibres (3,4) are made from polyester and preferably have different thicknesses, ranging from 5 to 15 dtex and 15 to 30 dtex, fibres (3, 4) of differing thicknesses being provided in a ratio of between 20 to 80 and 80 to 20 and the fibres (3, 4) having different levels of hardness, and wherein the fibres (3, 4) project 4 to 35 millimetres - preferably about 8 mm - from the substrate (2).
7. Device according to claim 1, wherein the substrate (2) for the fibres (3, 4) is also made from fibres in the form of a woven or similar fabric.
8. Device according to claim 1, wherein a non-woven fabric or similar material is provided as the substrate (2) for the fibres (3,4) and serves at the same time as the absorbent structure.
9. Device according to claim 1, wherein the substrate (2) for the fibres (3,4) is produced from plastic fibres.
10. Device according to claim 1, wherein the fibres (3, 4) are glued or welded to the substrate (2).



Robie
Patent Agents